

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

ACTION: Notice of Request for Information (RFI).

SUMMARY: The purpose of this Request for Information (RFI) is to solicit input from all interested parties regarding recommendations for the development of a National Plan for Civil Earth Observations (“National Plan”). The public input provided in response to this Notice will inform the Office of Science and Technology Policy (OSTP) as it works with Federal agencies and other stakeholders to develop this Plan.

DATES: Responses must be received by December 6, 2013 to be considered.

SUBMISSION: You may submit comments by any of the following methods.

- **Downloadable form:** To aid in information collection and analysis, OSTP encourages responses to be provided using this form. Please enter your responses in the fillable fields that follow the questions below.
- **Email:** OSTP encourages respondents to email the completed form, as an attachment, to earthobsplan@ostp.gov. Please include “National Plan for Civil Earth Observations” in the subject line of the message.
- **Fax:** (202) 456-6071.
- **Mail:** Office of Science and Technology Policy, 1650 Pennsylvania Avenue, NW, Washington, DC, 20504. Information submitted by postal mail should allow ample time for processing by security.

Response to this RFI is voluntary. Respondents need not reply to all questions listed. Each individual or institution is requested to only submit one response. Responses to this RFI, including the names of the authors and their institutional affiliations, if provided, may be posted on line. OSTP therefore requests that no business proprietary information, copyrighted information, or personally-identifiable information be submitted in response to this RFI. Given the public and governmental nature of the National Plan, OSTP deems it unnecessary to receive or to use business proprietary information in its development. Please note that the U.S. Government will not pay for response preparation, or for the use of any information contained in the response.

FOR FURTHER INFORMATION CONTACT:

Timothy Stryker, 202-419-3471, tstryker@ostp.eop.gov, OSTP.

SUPPLEMENTARY INFORMATION:

Background

The U.S. Government is the world's largest single provider of civil environmental and Earth-system data. These data are derived from Earth observations collected by numerous Federal agencies and partners in support of their missions and are critical to the protection of human life and property; economic growth; national and homeland security; and scientific research. Because they are provided through public funding, these data are made freely accessible to the greatest extent possible to all users to advance human knowledge, to enable industry to provide value-added services, and for general public use.

Federal investments in Earth observation activities ensure that decision makers, businesses, first responders, farmers, and a wide array of other stakeholders have the information they need about climate and weather; natural hazards; land-use change; ecosystem health; water; natural resources; and other characteristics of the Earth system. Taken together, Earth observations provide the indispensable foundation for meeting the Federal Government's long-term sustainability objectives and advancing the Nation's societal, environmental, and economic well-being.

As the Nation's capacity to observe Earth systems has grown, however, so has the complexity of sustaining and coordinating civil Earth observation research, operations, and related activities. In October 2010, Congress charged the Director of OSTP to address this challenge by producing and routinely updating a strategic plan for civil Earth observations (see *National Aeronautics and Space Administration Authorization Act of 2010, Public Law 111-267, Section 702*).

Responding to Congress, in April 2013, OSTP released a [National Strategy for Civil Earth Observations](#) ("the National Strategy").

In April 2013, OSTP also re-chartered the U.S. Group on Earth Observations (USGEO) Subcommittee of the National Science and Technology Council's Committee on Environment, Natural Resources, and Sustainability. USGEO will carry out the National Strategy and support the formulation of the National Plan.

As requested by Congress, the National Plan is being developed by USGEO to advise Federal agencies on the Strategy's implementation through their investments in and operation of civil Earth observation systems. The Plan will provide a routine process, on a three-year cycle, for assessing the Nation's Earth observation investments; improving data management activities; and enhancing related interagency and international coordination. Through this approach, the Plan will seek to facilitate stable, continuous, and coordinated Earth observation capabilities for the benefit of society.

Congress also requested that development of the National Plan include a process for collecting external independent advisory input. OSTP is seeking such public advisory input through this RFI. The public input provided in response to this Notice will inform OSTP and USGEO as they work with Federal agencies and other stakeholders to develop the Plan.

Definitions and Descriptions

The term “**Earth observation**” refers to data and information products from Earth-observing systems and surveys.

“**Observing systems**” refers to one or more sensing elements that directly or indirectly collect observations of the Earth, measure environmental parameters, or survey biological or other Earth resources (land surface, biosphere, solid Earth, atmosphere, and oceans).

“**Sensing elements**” may be deployed as individual sensors or in constellations or networks, and may include instrumentation or human elements.

“**Observing system platforms**” may be mobile or fixed and are space-based, airborne, terrestrial, freshwater, or marine-based. Observing systems increasingly consist of integrated platforms that support remotely sensed, *in-situ*, and human observations.

Assessing the Benefits of U.S. Civil Earth Observation Systems

To assist decision-makers at all levels of society, the U.S. Government intends to routinely assess its wide range of civil Earth observation systems according to the ability of those systems to provide relevant data and information about the following Societal Benefit Areas (SBAs):

1. Agriculture and Forestry
2. Biodiversity
3. Climate
4. Disasters
5. Ecosystems (Terrestrial and Freshwater)
6. Energy and Mineral Resources
7. Human Health
8. Ocean and Coastal Resources and Ecosystems
9. Space Weather
10. Transportation
11. Water Resources
12. Weather

The U.S. Government also intends to consider how current and future reference measurements (*e.g.*, bathymetry, geodesy, geolocation, topography) can enable improved observations and information delivery.

To address measurement needs in the SBAs, the U.S. Government operates a wide range of atmospheric, oceanic, and terrestrial observing systems. These systems are designed to provide: (a) sustained observations supporting the delivery of services, (b) sustained observations for research, or (c) experimental observations to address specific scientific questions, further technological innovation, or improve services.

Questions to Inform Development of the National Plan

Name (optional): Mike Conschafter

Position (optional):

Institution (optional): Exelis Geospatial Systems

Through this RFI, OSTP seeks responses to the following questions:

1. Are the 12 SBAs listed above sufficiently comprehensive?

Yes. Exelis Inc. has a long history in remote sensing -

<http://marcomm.gs.exelisinc.com/historyofspace/images/Exelis-Heritage-Timeline3.pdf> - and would like to thank OSTP for its examination of Earth observing systems.

- a. Should additional SBAs be considered?

SBAs appear sufficient; however Exelis would like to emphasize the critical nature of weather and climate to the nation, U.S. security, and our economy.

- b. Should any SBA be eliminated?

SBAs appear sufficient.

2. Are there alternative methods for categorizing Earth observations that would help the U.S. Government routinely evaluate the sufficiency of Earth observation systems?

A matrix system may be useful to explore. For example, one axis in matrix could include a listing of USG Civil EO systems and a second axis could include each SBA in order to align SBA's with EO systems so that gaps in SBA coverage could be identified.

3. What management, procurement, development, and operational approaches should the U.S. Government employ to adequately support sustained observations for services, sustained observations for research, and experimental observations? What is the best ratio of support among these three areas?

Services, or operational systems, should include about a 60% ratio of support. Research observations should include about a 40% ratio of support and experimental systems should include a 10% ratio of support.

Stable production and funding of core operational systems is important, but this should be balanced by robust support for experimental observations. Experimental systems allow the U.S. to push the bar on achieving new, cutting-edge capability to meet SBA needs. Also, support for experimental systems

allows the U.S. to push the bar on new cost-effective approaches via small satellites and hosted payloads.

4. How should the U.S. Government ensure the continuity of key Earth observations, and for which data streams (e.g., weather forecasting, land surface change analysis, sea level monitoring, climate-change research)?

One way the U.S. government could help sustain Earth Observations continuity is by taking an unstovepiped look at critical Civil and military EO capabilities. For example, the DOD is currently looking at options for its future military weather satellite capability - http://www.aia-aerospace.org/assets/DOD_Weathersat_Capability_Paper.pdf. Potential for new EO capability for the DOD will be an opportunity for USG agencies to collaborate and potentially benefit from leverage of whichever option DOD seeks to pursue.

Continuity could also be bolstered by allowing U.S. space firms greater ability to compete internationally. While the U.S. government is working to modernize the ITAR and control of space systems under Category XV, more could be done particularly to help enable the competitiveness of our remote sensing manufacturers. Despite U.S. leadership in high resolution Earth observation satellite systems, no U.S. supplier has built a high resolution system for a foreign partner. With a growing market for high-resolution Earth observations systems with 50 cm to 70 cm apertures, allowing greater U.S. competitiveness at those levels would support both a strong U.S. industrial base as well as continuity of data streams for land remote sensing, weather collections and other critical capabilities.

5. Are there scientific and technological advances that the U.S. Government should consider integrating into its portfolio of systems that will make Earth observations more efficient, accurate, or economical? If so, please elaborate.

Strengthen investments in cutting-edge space LIDAR measurements.

6. How can the U.S. Government improve the spatial and temporal resolution, sample density, and geographic coverage of its Earth observation networks with cost-effective, innovative new approaches?

One approach could be to work with the U.S. commercial imagery provider to understand how that firm has steadily improved its satellite constellation capability via fixed-price, commercial practices.

7. Are there management or organizational improvements that the U.S. Government should consider that will make Earth observation more efficient or economical?

As mentioned earlier, U.S. government Earth observation decision making could benefit from enhanced cross-agency review. The U.S. could consider strengthening existing coordinating mechanisms. Another option could be to develop a FACA that supports the coordination of Earth observations via participation via government, industry and academia.

8. Can advances in information and data management technologies enable coordinated observing and the integration of observations from multiple U.S. Government Earth observation platforms?

Yes. The U.S. Government should support integration of observations from multiple platforms. One way the U.S. could ensure Earth observation data continuity is through the leveraging of data systems already in use in other parts of the government and industry.

9. What policies and procedures should the U.S. Government consider to ensure that its Earth observation data and information products are fully discoverable, accessible, and useable?
10. Are there policies or technological advances that the U.S. Government should consider to enhance access to Earth observation data while also reducing management redundancies across Federal agencies?

Yes. The U.S. government should consider new or existing software technologies that can be leveraged to ingest and share EO data among Federal agencies.

11. What types of public-private partnerships should the U.S. Government consider to address current gaps in Earth observation data coverage and enhance the full and open exchange of Earth observation data for national and global applications?

One excellent example of a public-private partnership that enhances Earth observation data is the National Geospatial-Intelligence Agency's (NGA) ten year, EnhancedView program, part of the U.S. government's "2+2" effort to procure a mix of both commercial and government imagery systems. The EnhancedView program supports high resolution, multispectral, commercial satellite imagery that is unclassified, and thus useful for information sharing with allies both on and off the battlefield. This imagery also has significant and growing civil and commercial applications, and has proven critical to U.S. homeland security first responders.

12. What types of interagency and international agreements can and should be pursued for these same purposes?

Interagency agreements to enhance the competitiveness of the U.S. Earth observation industry could have the greatest dividends to U.S. EO data sustainability and continuity. This can be achieved by U.S. agencies agreeing to a level up to 70 cm in aperture to Commerce Control in order to allow greater U.S. competition against foreign manufacturers. In addition, the U.S. government could also consider modernization of current resolution restrictions. Restrictions on U.S. commercial imaging, which might have made sense 13 years ago, have since been overtaken by technology and should be updated.